

ABSTRACT

A multi-chip module instrument controller having various interface and operational capabilities. The controller incorporates a microprocessor and both volatile and non-volatile memories. The controller includes variable analog-to-digital conversion bit depths, with higher bit depths for some applications. Additionally, the controller includes a separately controllable field programmable gate array that acts as a parallel processor with internal or separate external clock. The FPGA preferably includes more than thirty thousand gates (30,000) and adds a freely re-configurable and separately programmable multi-purpose digital system that can run independent of the microprocessor.